WS2000

All-in-one wired and wireless switch for small to medium-sized businesses and branch offices

FEATURES

Switch-based centralized upgradable architecture
Enhanced performance and functionality; simplified deployment/management, investment protection; low TCO

802.11a/b/g compatibility
Lower cost; broad, flexible radio support

Wi-Fi Multimedia (WMM™) Quality of Service (QoS) and Voice prioritization
Superior performance for demanding mission critical applications, including voice and video

SIP Call Admission Control
Controls the number of active SIP sessions that are initiated by a wireless VoIP phone

Enterprise-class security: 802.1X/EAP Kerberos, WPA2 (802.11i)
Enterprise-class authentication and encryption; ensures privacy of data during transmission

Simple, cost-effective wired and wireless networking for enterprise branch offices

The WS2000 Wireless Switch is a powerful all-in-one solution that simplifies and helps reduce the costs of managing wired and wireless (802.11a/b/g) networks in enterprise branch offices. The WS2000 provides best in class secure wireless and wired network services to enable data, voice, video and mobility in the enterprise. The integrated router, VPN gateway, firewall, IPS, Power-over-Ethernet (PoE) and more eliminate the cost of purchasing and the complexity of managing multiple pieces of equipment. Support for Wi-Fi Multimedia extensions (WMM U-APSD) and SIP Call Admission Control enables the WS2000 to provide peak performance for even the most demanding applications, including voice and video. Smart Scan enables faster roaming by performing an opportunistic channel scan and providing a list of nearby available channels. This robust feature set delivers enterprise-class networking functionality — priced for the small to medium-sized business or enterprise branch office.

End-to-end enterprise-class security and compliance

The WS2000 offers the end-to-end enterprise-class security you need to secure your wired and wireless networks. Integrated wired and wireless IDS/IPS features detect and stop attacks originating from wired or wireless hosts — from the local area network (LAN) and the Internet. Support for all the latest security protocols keeps your network and data secure, including: WPA2; an integrated AAA (authentication, authorization and accounting) server for authenticating users; rogue access port/point (AP) detection and containment; Anomaly Analysis; stateful packet inspection firewall with extension Application Layer Gateway (ALG) support; URL filtering; IP routing; IP filtering and more. And comprehensive VPN support provides a secure connection between your sites — as well as between your users and your host computer. The end result is a robust layered security approach than enables enterprises to achieve constant compliance with government regulations, including HIPAA and PCI.

Easy to manage and deploy

The WS2000 offers a level of management simplicity and flexibility that eliminates the need and cost for on-site IT personnel to manage the wireless networks. Fewer technical on-site staff in restaurants, retail stores, warehouses and healthcare clinics can easily manage the wired and wireless network through an intuitive web-based interface and centralized management and control of access ports. For larger corporations deploying the WS2000 in branch offices, secure remote management capabilities (with SSH and SNMP v3 support) and auto deployment capabilities

Smart Scan
Opportunistically scans channels to provide a list of nearby channels that are available, improving roaming speed for clients

Wireless IDS/IPS
Enhanced intrusion detection system (IDS) provides Rogue AP detection, Rogue AP containment and anomaly analysis of wireless data packets and client blacklisting

Wired IDS/IPS
Built-in Stateful Packet Inspection firewall; provides comprehensive protection against attacks by performing inline signature analysis of data traffic originating from wired and wireless hosts, both from the LAN and the Internet

AAA integrated server: verifies identity of users and administrators
Eliminates the cost/need for a separate RADIUS server

Integrated secure VPN gateway, routing, DHCP, NAT, Stateful Packet Inspection Firewall with extensive ALG support and WAN uplink (with PPPoE)
Eliminates need to purchase and manage additional equipment; simplifies provisioning of network services

Mesh networking
Allows wireless extension of existing wired or wireless networks in remote or outdoor locations

Triple methodology rogue AP detection: on-channel, mobile unit, dedicated radio dual-band scanning
Instant identification and reporting of unauthorized users delivers superior network protection

(with DHCP options) enable staff in the centralized network operations or data center to easily control and manage devices anywhere in the world. Implementation is fast and easy: the plug-and-play WS2000 automatically detects and configures access ports with the best channel. And tight integration with the wired network simplifies the extension of wired virtual LANs (VLANs), improving network performance as well as providing added protection against unauthorized access.

Rich meshing functionality simplifies deployment and reduces costs

The meshing capabilities of the WS2000 enable the easy extension of the network to hard to cable areas inside and outside the enterprise, simplifying deployment — and reducing the total cost of ownership (TCO). Support for a wide array of meshing applications includes simple point-to-point bridges to connect two wired networks as well as complex multi-node, multi-link networks that offer self-healing for superior resiliency.

Superior network performance...and resiliency

The WS2000 is packed with Built-in RF management features, controlling the power and channels of the APs providing a high performance, resilient network connection your workers can count on. Features include Neighbor Recovery, which enables self-healing in the event an access port powers off — a nearby access port can automatically increase power, provide the signal strength necessary to compensate for the offline device. When too many access ports are on the same channel, Interference Avoidance automatically invokes the Automatic Channel Select (ACS) feature to select a channel to minimize interference — optimizing network performance and availability.

Ideal for hotspots

The WS2000 is uniquely suited for hotspots, enabling, hotels, airports, lounges, restaurants and more to offer visitors convenient anywhere anytime time-bound access to the Internet, email, and corporate applications. Support for authentication and Radius accounting enables organizations and service providers to offer secure wireless public access, either as a complimentary service or as an additional revenue stream. And support for centralized and secure administration of a Radius server in the main office greatly simplifies hotspot enablement for distributed locations — allowing, for example, a chain of coffee shops to provide visitors with a single user ID and password for instant hotspot access in all locations.

Lower Total Cost of Ownership (TCO)

The WS2000 reduces the complexities and costs associated with deploying, managing, securing, upgrading and scaling your wired and wireless network — delivering outstanding investment protection and a lower TCO. Motorola Enterprise Mobility Services provide the comprehensive support and technical expertise you need to design, deploy and maintain the most successful mobility solutions. For more information, visit us on the web at www.motorola.com/ws2000 or access our global contact directory at: www.motorola.com/enterprisemobility/contactus

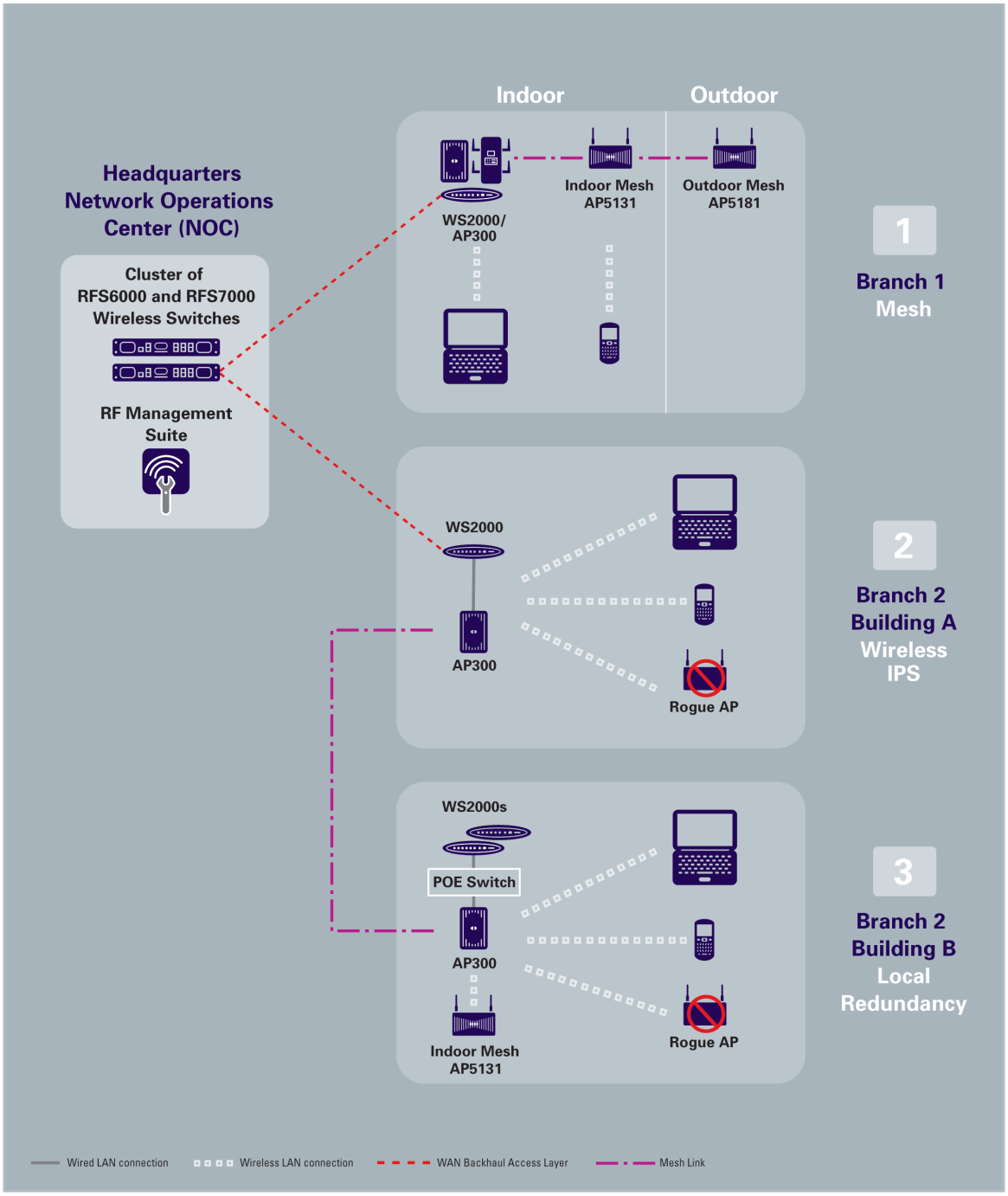
WS2000 Series Specifications

Packet Forwarding	
802.1D-1999 Ethernet Bridging; 802.11-.802.3 Bridging; 802.1Q VLAN tagging and trunking; proxy ARP; IP packet steering-redirection	
Networking	
Wireless LAN:	Supports 8 WLANs; Virtual AP - Multi-ESS/ BSSID traffic segmentation; Pre-emptive Roaming; Automatic Load Balancing
VLAN Support:	Wireless LAN to VLAN mapping; VLAN to ESSID mapping; Auto Assignment of VLANs based on user authentication (including RADIUS authentication); supports six (6) IP subnets
Access Port Radios:	Supports 1-6 802.11a/b/g access ports; Automatic Access Port Adoption with ACLs; Auto Channel Selection capability
Roaming:	Supports Hyper-fast Secure Roaming with Smart Scan (opportunistic channel scan); Power Save Protocol (PSP) polling; Pre-emptive Roaming
Bandwidth Management:	Congestion control with bandwidth management and throttling per WLAN
RF Management:	Dynamic Frequency Selection and Transmit Power Control (TPC); Country Code based RF configuration; self-healing for Neighbor Recovery and Interference Avoidance; Auto Channel Selection capability
Layer 2 or Layer 3 deployment of AP300 802.11 a/b/g Access Ports	
IP routing support	
Supported Access Ports/ Access Points:	Support for legacy AP100 and AP200 Access Ports; legacy Access Points AP4121 and AP4131 — for conversion to access ports; AP300 (802.11a/b/g) — L2 and L3 ports and access deployments with static IP support; AP51x1 802.11 a/b/g in mesh mode
Mesh:	The WS2000/AP300 can operate as a wireless base bridge, connecting to AP51X1 access points in a mesh topology
Network Security	
Stateful Layer 3 Firewall	
Network Address Translation (NAT)	
Access Control Lists (ACLs): L2/3/4 ACLs	
Authentication Mechanisms:	Pre-Shared Keys (PSK); 802.1x/EAP Transport Layer Security (TLS); Tunneled Transport Layer Security (TTLS); Protected EAP (PEAP); Kerberos; Integrated AAA server with native support for PEAP and TTLS; LDAP; Radius Authentication over a VPN

Specifications continued on back

WS2000 Network Architecture

The WS2000 brings enterprise mobility and secure wired and wireless networking to branch offices and other distributed locations.



Active/standby configuration
Robust network redundancy through multiple links

IP filtering
Provides flexibility in defining access policies

URL filtering
Provides complete control over which websites workers can access; supports URL Blacklist; URL Whitelist; trusted host provisioning; keyword analysis in URL and reverse DNS lookup to prevent access via IP address

Comprehensive features to enable public hot spots
Provides secure public access — complimentary or service-based; enables centralized authentication to a Radius server, simplifying hotspot enablement for the enterprise and the user

Site-to-Site IPSec VPN
Cost-effective secure point-to-point and client device-to-host communications

802.3af Power-over-Ethernet (PoE) support
Built-in 4-port PoE eliminates need and expense to power access ports and points

Java™ web-based graphical user interface; Motorola RF Management Suite (RFMS); SNMPv3; command line interface (CLI)
Flexible management options; easy-to-use "anytime, anywhere" management

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Application Layer Gateway (ALG) Support:	SIP, H323, NETBIOS, IKE, TFTP, FTP, PPTP, DNS, L2TP, SMTP, NNTP, SQL, HTTP, HTTPS, GATEKEEPER, RPC, MSGUDP, N2P, PCANYWHERE, RTSP, MSGTCP, N2PE, AIM, ICQ, MSN, ILS
Transport Encryption:	WEP 40/128 (RC4), KeyGuard, WPA — TKIP, AES — CCMP; (802.11i WPA2)
Key Exchange Management:	Extensible Authentication Protocol (EAP); Kerberos
Intrusion Detection:	AP scanning on one or all channels; Motorola mobile client assist
IP Filtering:	Configurable incoming and outgoing IP filtering policies on packets within the same subnet/WLAN and between wired and wireless hosts
Wireless IDS/IPS:	Multi-mode rogue AP detection, integrated capabilities for Rogue AP containment, client blacklisting, excessive authentication/association; excessive probes; excessive disassociation/deauthentication; excessive decryption errors; excessive authentication failures; excessive 802.11 replay; excessive crypto IV failures (TKIP/CCMP replay)
Wired IDS/IPS:	Inline signature analysis of data traffic performed on traffic from both wired and wireless hosts; configurable by protocol — Telnet, POP3, IMAP, NNTP, FTP, SNMP, TCP-DNS, UDP-DNS, TCP-RPC, UDP-RPC, HTTP, SMTP, TCPGEN, UDPGEN, ICMP, TCP, UDP, IP; Denial of Service (DOS) Attack Protection, including logging of detected attacks
URL Filtering:	Allow or deny access to specific web sites: Reverse DNS lookup to block access by IP address; URL Blacklist; URL Whitelist; Keyword analysis in URL; trusted host provisioning
Anomaly Analysis:	Source Media Access Control (MAC) = Dest MAC; Illegal frame sizes; Source MAC is multicast; TKIP countermeasures; all zero addresses
Premium Wireless IPS:	Via RF Management Suite for forensics and reporting
VPN gateway:	Supports DES, 3DES and AES-128 and AES-256 encryption; supports site-to-site and client-to-site VPN capabilities
Secure Guest Local Web Based Authentication:	URL redirection for access (hotspot user login; customizable login/welcome pages; provisioning) support for external authentication/billing systems
Wireless RADIUS (standard and Motorola specific attributes):	User based VLANs (standard) MAC based authentication (standard) Vendor user based QoS (Motorola VSA) Location based authentication (Motorola VSA) Allowed ESSIDs (Motorola VSA)

Optimized Wireless QoS

Wi-Fi multimedia extensions:	WMM-power save with Admission Control; WMM U-APSD
Classification and marking:	Layer 1-4 packet classification; 802.1p VLAN priority; DiffServ/TOS

Management

Command Line Interface (Serial, Telnet, SSH v2); secure Web-based GUI (SSL); SNMP v1/v2/v3; SNMP traps — 40+ user configurable options; Syslog; TFTP Client; text-based switch configuration files; DHCP (client/server/relay), switch auto-configuration and firmware updates with DHCP options; Syslog, MIBs (MIB-II, Ping MIB, Trace Route MIB, Motorola MIB

High Availability

Active/standby configuration support; self healing (on detection of RF interference or loss of RF coverage)

Dual Firmware bank supports Image Failover capability

Physical Characteristics

Form Factor:	Standard 1RU rack mount
Dimensions:	1.75 in. H x 11.25 in. W x 8 in. D 44.5 mm H x 286 mm W x 203 mm D
Weight:	1.41 lb/0.64 kg
Physical Interfaces:	1 - RS232 serial console port 7 - 10/100 Ethernet ports (including 1 WAN uplink port), 4 Ports support 802.3af Power-over-Ethernet CF Card (for storage, configuration update and alternate syslog)
MTBF:	>50,000 Hours
RoHS Compliant:	Yes

Power Requirements

AC Input Voltage:	100-250 VAC
Max AC Input Current:	3A@230 VAC
Maximum Power Consumption:	120 W
Input Frequency:	47 Hz to 63 Hz

User Environment

Operating Temperature:	32°F to 104°F/0°C to 40°C
Storage Temperature:	-40°F to 158°F/-40°C to 70°C
Operating Humidity:	5% - 95% (w/o condensation)
Storage Humidity:	5% - 95% (w/o condensation)
Operating Altitude:	50 ft. to 8,000 ft./16 m to 2,438 m
Storage Altitude:	50 ft. to 12,000 ft./16 m to 3,658 m

Regulatory

Safety Certifications:	UL, cUL (60950-1), EN60950-1, TUV/GS
EMI Compliance:	FCC (Part 15 Subpart B), VCCI, EN 55024, EN 61000-3-2, EN 61000-3-3, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11

Recommended Enterprise Mobility Services

Customer Services:	Service from the Start Advance Exchange Support

Part Numbers for US/Canada

WS-2000-SME-ES-WR
WS-2000-1ES-ABG-WR(WS2000 and 1 AP300 (802.11a/b/g) bundle)
WS-2000-2ES-ABG-WR(WS2000 and 2 AP300 (802.11a/b/g) bundle)
WS-2000-2ES-BG-WR (WS2000 and 2 AP300 (802.11b/g) bundle)

Part Numbers for all other countries

WS-2000-SME-WWR
WS-2000-1C-ABG-WWR (WS2000 and 1 AP300 (802.11a/b/g) bundle)
WS-2000-2C-ABG-WWR (WS2000 and 2 AP300 (802.11a/b/g) bundle)
WS-2000-2C-BG-WWR (WS2000 and 2 AP300 (802.11b/g) bundle)

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